

**CLAIMS**

1. A trace cover suitable for shielding a conductive trace on a circuit board, the circuit board includes at least one circuit ground, the trace cover comprising:

5 a body composed of a dielectric substrate, the body having a top surface, a bottom surface and side surfaces, the bottom surface of the body configured to be disposed substantially over the conductive trace; and

10 top shielding disposed on the top surface of the body, the top shielding being electrically coupled with the at least one circuit ground of the circuit board.

2. The trace cover of claim 1, further comprising side shielding perpendicular to the direction of the signal trace and substantially parallel to the length of the conductive trace, the side shielding being electrically coupled with the at least one circuit ground of the circuit board.

3. The trace cover of claim 2, further comprising at least one connecting pad disposed on the bottom surface of the body, the connecting pad configured to electrically couple the side shielding with the at least one circuit ground.

4. The trace cover of claim 2, wherein the side shielding includes a plurality of conductive vias disposed between the top surface and bottom surface of the body.

5. The trace cover of claim 4, wherein the plurality of conductive vias are spaced approximately one-quarter inch apart.

6. The trace cover of claim 2, wherein the side shielding includes a conductive plating disposed along the side surfaces of the body.

7. The trace cover of claim 1, wherein the top shielding is a conductive plating.

8. The trace cover of claim 1, wherein the top shielding is electrically coupled to the circuit ground through the side shielding.

9. The trace cover of claim 1, wherein the dielectric substrate of the body is different than a dielectric substrate of the circuit board.

10. A circuit board comprising:

an outer board layer;

a conductive trace disposed on the outer layer;

at least one circuit ground;

5 a trace cover disposed substantially over the conductive trace, the trace cover including a dielectric body, top shielding disposed over the body, and side shielding perpendicular to the direction of the conductive trace and substantially parallel to the length of the conductive trace, the top shielding and side shielding electrically  
10 coupled to the at least one circuit ground;

an inner board layer vertically offset from the outer board layer, the inner board layer including a ground plate vertically offset from the conductive trace, the ground plate electrically coupled to the at least one circuit ground; and

15 a plurality of board vias electrically coupling the ground plate to the trace cover.

11. The circuit board of claim 10, wherein the trace cover is soldered to the outer board layer.

12. The trace cover of claim 10, further comprising at least one connecting pad disposed on a bottom surface of the body, the connecting pad configured to electrically couple the side shielding with the at least one circuit ground.

13. The trace cover of claim 10, wherein the side shielding includes a plurality of conductive vias disposed between a top surface and a bottom surface of the body.

14. The trace cover of claim 10, wherein the side shielding includes a conductive plating disposed along side surfaces of the body.

15. The trace cover of claim 10, wherein the top shielding is a conductive plating disposed over the top of the body.

16. The trace cover of claim 10, wherein the top shielding is electrically coupled to the circuit ground through the side shielding.

17. A circuit board comprising:  
a conductive trace disposed on an outer layer of the circuit board; and  
means for shielding the conductive trace.

18. A trace cover suitable for suppressing electromagnetic emissions from a conductive bus on a circuit board, the conductive bus including at least two substantially parallel bus traces, the circuit board including at least one circuit ground, the trace cover  
5 comprising:

a body composed of a dielectric substrate, the body having a top surface, a bottom surface and side surfaces, the bottom surface of the body configured to be disposed substantially over the conductive bus;  
side shielding perpendicular to the direction of the conductive  
10 bus and substantially parallel to the length of the conductive bus, the side shielding being electrically coupled with the at least one circuit ground of the circuit board; and  
top shielding disposed on the top surface of the body, the top shielding being electrically coupled with the at least one circuit  
15 ground of the circuit board.

19. The trace cover of claim 18, further comprising bus shielding disposed within the body and between the bus traces, the bus shielding being electrically coupled with the at least one circuit ground of the circuit board.

20. The trace cover of claim 19, further comprising at least one connecting pad disposed on the bottom surface of the body, the

connecting pad configured to coupled the bus shielding with the at least one circuit ground.

21. The trace cover of claim 19, wherein the bus shielding includes a plurality of conductive vias disposed between the top surface and bottom surface of the body.

22. The trace cover of claim 19, wherein the bus shielding is coupled to the circuit ground through the side shielding.

23. The trace cover of claim 18, wherein the side shielding includes a conductive plating disposed along side surfaces of the body.

24. A method for assembling a circuit board, the circuit board including at least one high frequency conductive trace and at least one circuit ground, the method comprising:

receiving the circuit board; and

5        attaching a trace cover to the circuit board, the trace cover disposed substantially over the conductive trace and including a dielectric body, top shielding disposed over the body, and side shielding perpendicular to the direction of the conductive trace and substantially parallel to the length of the conductive trace, the top  
10        shielding and side shielding are configured to be electrically coupled to the at least one circuit ground.

25. The method of claim 24, wherein attaching the trace cover includes soldering the trace cover to the circuit board.

26. The method of claim 24, further comprising electrically coupling the top shielding and side shielding to the at least one circuit ground.